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| 09/986,531 | 11/09/2001 | J. Barry Shackleford | 10008128-1 | 5766 |

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HEWLETT-PACKARD COMPANY
Intellectual Property Administration
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EXAMINER

HIRL, JOSEPH P

| ART UNIT | PAPER NUMBER |
|----------|--------------|
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2121

DATE MAILED: 02/02/2004

2

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/986,531

Applicant(s)

SHACKLEFORD, J. BARRY

Examiner

Joseph P. Hirl

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-- The MAILING DATE of this communication appears on the reverse with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 November 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 November 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. Claims 1-18 are pending in this application.

2. The claims and only the claims form the metes and bounds of the invention.

"Office personnel are to give the claims their broadest reasonable interpretation in light of the supporting disclosure. *In re Morris*, 127 F.3d 1048, 1054-55, 44USPQ2d 1023, 1027-28 (Fed. Cir. 1997). Limitations appearing in the specification but not recited in the claim are not read into the claim. *In re Prater*, 415 F.2d, 1393, 1404-05, 162 USPQ 541, 550-551 (CCPA 1969)" (MPEP p 2100-8, c 2, I 45-48; p 2100-9, c 1, I 1-4). The Examiner has full latitude to interpret each claim in the broadest reasonable sense. Examiner will reference prior art using terminology familiar to one of ordinary skill in the art. Such an approach is broad in concept and can be either explicit or implicit in meaning.

3. Examiner's Opinion: The cited prior art involves a different inventor entity and different assignees. The proposed fitness circuit is generic in nature following a methodology well known to one of ordinary skill in the art: registers with data, converted via a data base to data (partial results) followed by a simple addition process.

Specification

4. The specification is objected to for the following reasons:

Page 8, lines 33-34, the text discussion does not track the referenced Fig. 4.

This objection must be corrected.

Claim Rejections - 35 USC § 101

5. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 10-18 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The practical application test requires that a useful, concrete and tangible result be accomplished. Claims 10-18 represent abstract methodology and therefore are intangible. The consequence is non-statutory.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 10-18 are rejected under 35 USC 112, first paragraph because current case law (and accordingly, the MPEP) require such a rejection if a 101 rejection is given because when Applicant has not in fact disclosed the practical application for the invention, as a matter of law there is no way Applicant could have disclosed how to practice the undisclosed practical application. This is how the MPEP puts it:

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("The how to use prong of section 112 incorp rates as a matter f law the requirement of 35U.S.C. 101 that the specification disclose as a matter of fact a practical utility for the invention If the application fails as a matter of fact to satisfy 35 U.S.C. 101, then the application also fails as a matter of law to enable one of ordinary skill in the art to use the invention under 35 U.S.C. § 112."; In re Kirk, '376 F.2d 936, 942, 153 USIPQ 48, 53 (CCPA 1967) ("Necessarily, compliance with § 112 requires a description of how to use presently useful inventions, otherwise an applicant would anomalously be required to teach how to use a useless invention."). See, MPEP 21107.01 (IV), quoting In re Kirk (emphasis added).

Therefore, claims 10-18 are rejected on this basis.

7. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

8. Claims 3 and 18 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Regarding Claim 3, the concept of addition where there are a plurality of items to be added is indeed serial in nature as indicated by the applicants specification at page 11, line 1. Regarding Claim 18, the concept of changing out the fitness function (matrix of partial solutions) was not addressed.

9. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

10. Claims 4, 11 and 16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The use of the term "substantially" is relative, causing the claims to become indefinite.

Claim Rejections - 35 USC § 102

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

12. Claims 1-18 are rejected under 35 U.S.C. 102(e) as being anticipated by Shackleford et al (U.S. Patent 6,185,547, referred to as **Shackleford**).

Claim 1

Shackleford anticipates a solution register containing said potential solution for said genetic algorithm problem therein, said solution register comprising a plurality of component parts thereof (**Shackleford**, Fig. 7; c 4, l 63-64); a plurality of data tables, the number of data tables corresponding to the number of said component parts of said solution register, respective data tables having inputs from two respective ones of said component parts of said solution register, each of said data tables comprising a matrix of partial solutions to said genetic algorithm problem the two respective ones of said component parts determining a particular respective partial solution each of said matrices having identical entries therein (**Shackleford**, c 25, l 32-67; Examiner's Note (EN): para 2 above applies; there are a plurality of data tables that correspond to the solution register; test failed chip requires two inputs related to the solution register; matrix has partial solutions (data); and all rows in the table have the same cost); and an adder connected to each of said plurality of data tables; said adder added respective partial solutions from each of said plurality of data tables, thereby determining the fitness of said potential solution for said genetic algorithm problem (**Shackleford**, c 27, l 25-28).

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Claim 2

Shackleford anticipates said data tables include partial solutions specific to the sequential order of the potential solution (**Shackleford**, c 25, l 32-67; EN: para 2 applies; a matrix is an ordered array).

Claim 3

Shackleford anticipates said adder adds said partial solutions from the respective data tables in parallel (**Shackleford**, c 25, l 57-59; EN: para 2; see 35 USC 102 rejection above; Shackleford provides an adder).

Claim 4

Shackleford anticipates partial solutions from the respective data tables are added substantially simultaneously (**Shackleford**, c 25, l 57-59; EN: para 2; see 35 USC 102 rejections above; Shackleford provides an adder).

Claim 5

Shackleford anticipates each of said matrices within said data tables comprises an abbreviated matrix of partial solutions to said genetic algorithm problem (**Shackleford**, Fig. 25).

Claim 6

Shackleford anticipates fitness function circuit according to claim 5, wherein said abbreviated matrix contains at least $(n)(n-1)/2$ entries (**Shackleford**, Fig. 25; EN: para 2 applies; for sure there are at least $(n)(n-1)/2$ entries in the matrix).

Claims 7, 12

Shackleford anticipates at least two of the two respective ones of said component parts correspond to different entries within said matrices (**Shackleford**, Fig. 25; EN: para 2 applies; a two dimensional matrix always has two different entries).

Claims 8, 13

Shackleford anticipates all of the two respective ones of said component parts correspond to different entries within said matrices (**Shackleford**, Fig. 25; EN: para 2 applies; a two dimensional matrix always has two different entries which would be component parts).

Claims 9, 14

Shackleford anticipates genetic algorithm problem is the traveling salesman problem (**Shackleford**, c 1, l 19-21).

Claim 10

Shackleford anticipates inputting a plurality of potential solution values into a Solution register, said solution register comprising a plurality of component parts thereof (**Shackleford**, Fig. 7; c 4, l 63-64); receiving after said step of inputting, at each of a plurality of data tables two respective ones of said component parts of said solution register, the number of data tables corresponding to the number of said component parts of said solution register, each of said data tables comprising a matrix of partial solutions to said genetic algorithm problem, each of the matrices having identical entries therein (**Shackl - ford**, c 25, l 32-67; EN: para 2 above applies; there are a plurality of data tables that correspond to the solution register; test failed chip requires two inputs

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related to the solution register; matrix has partial solutions (data); and all rows in the table have the same cost); indexing said matrices of partial solutions to said genetic algorithm within said plurality of data tables, the two respective ones of said component parts determining respective particular partial solutions within the respective matrices (**Shackleford**, c 25, l 32-67; EN: para 2 above applies; indexing is axiomatic to a matrix table); and adding, by an adder connected to each of the respective data tables, respective outputs from each of said data tables, whereby the sum of said adder determines the fitness of said potential solution for said genetic algorithm problem (**Shackleford**, c 27, l 25-28).

Claim 11

Shackleford anticipates step of receiving, at each of said plurality of data tables, two respective ones of said component parts of said solution register are received substantially simultaneously (**Shackleford**, c 25, l 32-67; EN: para 2 above applies; it is generic circuit design to achieve table information via the use of an abscissa and ordinate values; one without the other does not achieve much).

Claim 15

Shackleford anticipates said step of receiving at each of said plurality of data tables, two respective ones of said component parts of said solution register correspond to the sequential order of the potential solution values in said solution register (**Shackleford**, c 25, l 32-67; EN: para 2 applies; a matrix is an ordered array).

Claim 16

Shackleford anticipates (a) inputting a plurality of potential solution values into a solution register said solution register comprising a plurality of component parts thereof (**Shackleford**, Fig. 7; c 4, l 63-64); (b) receiving, substantially simultaneously at each of a plurality of data tables two respective ones of said component parts of said solution register, the number of data tables corresponding to the number of said component parts of said solution register, each of said data tables comprising a matrix of partial solutions specific to said genetic algorithm problem, each of the matrices having identical entries therein (**Shackleford**, c 25, l 32-67; EN: para 2 above applies; there are a plurality of data tables that correspond to the solution register; test failed chip requires two inputs related to the solution register; matrix has partial solutions (data); and all rows in the table have the same cost); (c) indexing said matrices of partial solutions to said genetic algorithm within said plurality of data tables, the two respective ones of said component parts determining respective particular partial solutions within the respective matrices **Shackleford**, c 25, l 32-67; EN: para 2 above applies; indexing is axiomatic to a matrix table); (d) adding, by an adder connected to each of the respective data tables, respective outputs from each of said data tables in parallel whereby the sum of said adder determines the fitness of said particular potential solution for said genetic algorithm problem (**Shackleford**, c 27, l 25-28); (e) comparing the fitness of said particular potential solution to a fitness threshold (**Shackleford**, c 9, l 54-59); and replacing a prior potential solution from said pool of potential solutions with said particular potential solution if said fitness of said particular potential solution

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exceeds said fitness threshold, and otherwise deleting said particular potential solution
(**Shackleford**, c 9, l 54-59).

Claim 17

Shackleford anticipates said methodology repeating said steps (a) - (f) with
another particular potential solution with the same matrix of partial solutions
(**Shackleford**, c 1, l 51-55).

Claim 18

Shackleford anticipates said methodology repeating said steps (a) - (f) with
another particular potential solution with another matrix of partial solutions, said another
matrix corresponding to partial solutions for another genetic algorithm problem
(**Shackleford**, c 1, l 51-55; EN: to one of ordinary skill in the art, iteration can run on
the basis of a plurality of fitness functions).

Conclusion

13. The prior art of record and not relied upon is considered pertinent to applicant's
disclosure.

Shackleford et al, U.S. Patent 5,970,487

Ulyanov, U. S. Patent 6,411,944

Buczak et al, U. S. Pub 2002/0050902

14. Claims 1-18 are rejected.

Corr spondence Information

15. Any inquiry concerning this information or related to the subject disclosure should be directed to the Examiner, Joseph P. Hirl, whose telephone number is (703) 305-1668. The Examiner can be reached on Monday – Thursday from 6:00 a.m. to 4:30 p.m.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Anil Khatri can be reached at (703) 305-0282.

Any response to this office action should be mailed to:

Commissioner of Patents and Trademarks,
Washington, D. C. 20231;

or faxed to:

(703) 746-7239 (for formal communications intended for entry);

or faxed to:

(703) 746-7290 (for informal or draft communications with notation of "Proposed" or "Draft" for the desk of the Examiner).

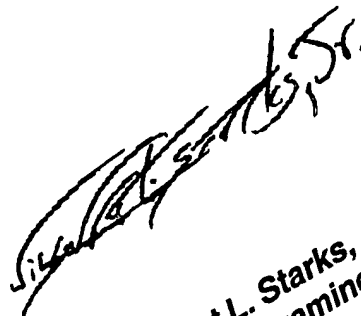
Hand-delivered responses should be brought to:

Receptionist, Crystal Park II
2121 Crystal Drive,
Arlington, Virginia.

Joseph P. Hirl



January 20, 2004



Wilbert L. Starks, Jr.
Primary Examiner
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